



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,723	11/24/2003	Wataru Kubo	P24128	1839
7055 7590 04/20/2007 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			EXAMINER LAMB, CHRISTOPHER RAY	
			ART UNIT	PAPER NUMBER
			2627	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		04/20/2007	ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/20/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/718,723	<b>Applicant(s)</b> KUBO, WATARU	
	<b>Examiner</b> Christopher R. Lamb	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-6 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimano et al. (US 5,889,748).

Regarding claim 1:

Shimano discloses an objective lens (for example, Fig. 22) for an optical recording/reproducing device which records/reproduces information to/from a recording medium, said objective lens converging a collimated beam in the vicinity of a recording surface of the recording medium to record/reproduce the information (visible in Fig. 22),

said objective lens comprising:

a single lens element having an incident surface to which the collimated beam enters and an exit surface being opposite to said incident surface (apparent in Fig. 22),

said incident surface and said exit surface being configured to be rotationally symmetrical aspherical surfaces (that they are rotationally symmetrical is apparent from Fig. 22; that they are aspherical is disclosed in, for example, column 16, lines 5-25),

said single lens element having positive refractive power (inherent).

Shimano does not disclose:

(A) That the recording medium uses holography. However, this is merely a statement of intended use and carries no patentable weight.

(B) That at least within an effective diameter of said single lens element said incident surface and said exit surface being symmetrical with respect to a plane perpendicular to an optical axis of said single lens element and having the same shape.

Regarding (B):

Shimano does depict the incident surface and exit surface being symmetrical with respect to a plane perpendicular to an optical axis of said single lens element and having the same shape in Figs. 1A, 1B, 10, 11, 12A, 12B, 13, 14A, 14B, 19A, 19B, and 20.

However, Applicant has argued in their remarks filed January 26<sup>th</sup>, 2007, that these drawings are merely conceptual drawings and that Shimano's specific lens embodiments do not possess this property.

Nonetheless, it would have been obvious to one of ordinary skill at the time of the invention to include in Shimano wherein the incident surface and exit surface are symmetrical with respect to a plane perpendicular to an optical axis of said single lens element and having the same shape.

The reasoning is as follows:

Shimano suggests this symmetry in the conceptual drawings: Figs. 1A, 1B, 10, 11, 12A, 12B, 13, 14A, 14B, 19A, 19B, and 20. Certainly, one of ordinary skill, looking at these drawings, would at least get the impression of a symmetrical lens.

Art Unit: 2627

Furthermore, the Examiner can find several motivations for making the incident and exit surfaces symmetrical:

(I) Ease of design: it is easier to design a lens with two identical surfaces than one with two different surfaces, because there are fewer variables to consider.

(II) Ease of manufacture: it is simpler to manufacture a lens with two identical surfaces.

(III) Ease of assembly: it is easier to assemble a system including a lens with two identical surfaces, because the lens can be fitted into the assembly in either direction. When a lens has two different surfaces, the system can only function if it is assembled with the correct orientation, and manufacturing errors can arise.

Regarding claim 4:

This is inherent to Shimano. The claimed elements are merely recitations of general properties of an ideal lens; thus any lens with sufficiently small aberration will meet the claimed elements within a reasonable margin of error (note that the Applicant discloses such error in, for example, Fig. 13).

Regarding claim 5:

In Shimano, with regard to each of a beam entering from said incident surface and a beam entering from said exit surface, said objective lens has wavefront aberration performance less than or equal to Marechal criterion within a maximum field angle range (column 6, lines 30-60).

Regarding claim 6:

Shimano discloses an objective lens as discussed above.

Shimano does not disclose “wherein half of the maximum field angle is larger than or equal to 3°.”

However, Shimano does discuss the aberration when the entering light is not completely parallel (when it enters along “an oblique direction”: column 16, line 65 to column 17, line 15). Shimano shows that the aberration still meets the Marechal criterion in these circumstances. Thus even though Shimano does not use the term “field angle”, or disclose the 3° requirement, Shimano does discuss the essential concept: that the aberration must be kept low even for non-parallel rays.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein half of the maximum field angle is larger than or equal to 3°, since it has been held that discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

#### ***Allowable Subject Matter***

3. Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: see the previous Office Action.

#### ***Response to Arguments***

5. Applicant's arguments, filed January 26<sup>th</sup>, 2007, with respect to claims 1, 4, and 5 have been fully considered and are persuasive. The 35 USC 102(b) rejection of claims 1, 4, and 5 has been withdrawn.

However, on further consideration, these claims have been rejected under 35 USC 103 as noted above.

Regarding claim 1:

Applicant had argued that the figure referred to by Examiner was merely a conceptual drawing, and that the specific embodiments disclosed by Shimano did not disclose the claimed symmetry with respect to a plane perpendicular to the optical axis.

The Examiner agrees that the specific embodiments did not disclose this symmetry. However, the claimed symmetry is at least suggested by Shimano: as Applicant themselves concedes that this symmetry is present in the conceptual drawings. Since the conceptual drawings are there to illustrate the basic concept of the invention, one of ordinary skill would see from them that such symmetry is at least within the concept of Shimano. As long as there is sufficient motivation to include it (and the Examiner has noted such motivation in the rejection above), that renders the claim at the least unpatentable over Shimano.

Therefore this rejection has been changed to a 35 USC 103 rejection as noted above.

Regarding claim 4:

Applicant argues that the claimed elements are not inherent to Shimano. However, as the Examiner has noted in the rejection, the claimed elements are merely the inherent properties of an ideal lens.

Regarding the relationship between image height, field angle, and focal length, see, for example: Maeda et al. (US 4,269,478), column 1, lines 10-30.

Regarding the relationship between entrance pupil plane, front focal point, and image point: this is a fundamental property of a Fourier transform lens. See, for example, Applicant's specification, paragraph 75: "accordingly, the objective lens L1 functions as a fourier [sic] transform lens." A Fourier transform lens, of course, is any lens that condenses collimates light, such as the lens of Shimano. The only reason a lens would not have this property would be if there were sufficient aberration to distort these positions. Since the purpose of Shimano is to design a lens with low aberration, the lens of Shimano contains this property.

Regarding claim 6:

Applicant argues that providing the particularly recited maximum field angle would not be merely determining an optimal or workable range to one of ordinary skill in the art. However, as noted in the rejection the Examiner has identified in Shimano a disclosure of the essential concept behind the claim (column 16, line 65 to column 17, line 15). Therefore, to set the field angle larger than or equal to three degrees is merely determining an optimal range. Applicant has not provided any reasons why they believe Shimano does not disclose this basic concept.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (571) 272-5264. The examiner can normally be reached on 9:00 AM to 6:30 PM Monday to Friday.

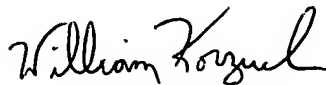


Art Unit: 2627

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 4/13/07

  
WILLIAM KORZUCH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600